1988 *Journal of Thermophysics and Heat Transfer* Index

How to Use the Index

In the Subject Index, pages 379–381, each technical paper is listed under a maximum of three appropriate headings. Note the number in boldface type following each paper title, and use that number to locate the paper in the Chronological Index. The Author Index, page 381, lists all authors associated with a given technical paper. The locating numbers are identical to those in the Subject Index. The Chronological Index, pages 382-384, lists all papers by their unique code numbers. This listing contains titles, authors and their affiliations, and volume, issue number, and page where the paper appeared. It also gives the AIAA paper number, if any, on which the article was based, as well as the "CP" or conference volume number if the paper was published in a bound collection of meetings papers. Comments, Replies, and Errata are listed directly beneath the paper to which they refer. If the paper to which they refer was published prior to 1988, that paper also will appear in both the Subject and Chronological Indexes. Authors of Comments also are listed in the Author Index.

Subject Index

Energy

Combustion

Comparison of Experimental and Computational Values of Flame Radiation **T88-025**

Conservation

Three-Dimensional Natural Convection Experiments in an Enclosure **T88-043**

Geothermal

Flow Film Boiling from a Sphere and a Horizontal Cylinder Embedded in Porous Medium **T88-064**
Melting of an Ice Surface in Porous Medium **T88-059**
Onset of Convection in a Porous Medium with Internal Heat Generation and Downward Flow **T88-054**

Lasers

Unsteady Heat Transfer Problems Related to a High-Power Laser Flow Loop **T88-066**

Nuclear Fission

Energy Transfer in an Elliptic Annulus with Uniform Heat Generation **T88-034**
Melting of a Horizontal Substrate Placed Under a Heavier and Miscible Pool **T87-048**

Nuclear Fusion

Radiative Shape Factors Between Differential Ring Elements on Concentric Axisymmetric Bodies **T88-014**
Melting of a Horizontal Substrate Placed Under a Heavier and Miscible Pool **T87-048**

Solar Thermal Power

Onset of Convection in a Porous Medium with Internal-Heat Generation and Downward Flow **T88-054**
Transient Response of a Liquid Metal Heat Pipe **T88-003**

Thermionic

Normal Spectral Emmittance Data for Thoriated Tungsten, Rhenium Alloys **T88-017**

Fluid Dynamics

Boundary Layers and Convective Heat Transfer-Laminar

Flow Film Boiling from a Sphere and a Horizontal Cylinder Embedded in Porous Medium **T88-064**
Melting of an Ice Surface in Porous Medium **T88-059**
Onset of Convection in a Porous Medium with Internal Heat Generation and Downward Flow **T88-054**
Steady Conjugate Heat Transfer in Fully Developed Laminar Pipe Flows **T88-051**
Transient Laminar-Film Condensation on a Vertical Plate **T88-045**
Three-Dimensional Natural Convection Experiments in an Enclosure **T88-043**
Influence of Aperture Location on Free Convection in Partially Divided Enclosures **T88-033**
Numerical Analysis of Laminar Flow in a Double-Walled Annular Heat Pipe **T88-030**
Simplified Solutions to Circular Annular Fins with Contact Resistance and End Cooling **T88-028**
Natural Convection Along a Wedge **T88-007**
Prediction of Film Boiling Wakes Behind Cylinders in Cross Flow **T87-057**

Boundary Layers and Convective Heat Transfer-Turbulent

Analysis of Turbulent Pipe Flow with a Variable Heat Transfer Coefficient Using Integral Equations **T88-041**
Heat Transfer Behavior with Convex Target Surfaces **T88-009**

Computational Methods

Unsteady Heat Transfer Coefficient Estimation for Long Duration **T88-040**
Influence of Aperture Location on Free Convection in Partially Divided Enclosures **T88-033**

Hydrodynamics

Multiburst Cloud Rise: Theory and Experiment **T88-067**

Jets, Wakes, and Viscid-Inviscid Flow Interactions

Heat Transfer Behavior with Convex Target Surfaces **T88-009**
Freejet Flows of Gas-Particle Mixtures **T88-002**

Multiphase Flows

Flow Film Boiling from a Sphere and a Horizontal Cylinder Embedded in Porous Medium **T88-064**
Heat Transfer from a Spherical Particle in a Rarefied Monatomic Gas **T88-057**
Cavitation of Liquid Streams in a Vacuum **T88-048**
Thermally Developing Flow in an Annulus with a Boiling Boundary **T88-042**
Liquid Flow Analysis in the Evaporator Grooves of the Cold Plate **T88-031**
Freejet Flows of Gas-Particle Mixtures **T88-002**

Plasmadynamics and MHD

Experiments on Optical Discharges in Hydrogen **T88-058**

Rarefied Flows

Heat Transfer from a Spherical Particle in a Rarefied Monatomic Gas **T88-057**
Monte Carlo Simulations in Support of the Shuttle Upper Atmospheric Mass Spectrometer Experiment **T88-026**

Reactive Flows

Assessment of a Two-Temperature Kinetic Model for Dissociating and Weakly Ionizing Nitrogen T88-001

Subsonic Flow

Heat Transfer Behavior with Convex Target Surfaces T88-009

Supersonic and Hypersonic Flow

Unsteady Heat Transfer Coefficient Estimation for Long Duration T88-040

Viscous Nonboundary-Layer Flows

Thermally Developing Flow in an Annulus with a Boiling Boundary T88-042

Interdisciplinary Topics

Analytical and Numerical Methods

Boundary-Element Method for Three-Dimensional Heat Transfer in Regions with Symmetry T88-063
Radiative Exchange Between Gray Fins Using a Coupled Integral Equation Formulation T88-055
Energy Transfer in an Elliptic Annulus with Uniform Heat Generation T88-034

Computer Software

Boundary-Element Method for Three-Dimensional Heat Transfer in Regions with Symmetry T88-063

Lasers and Laser Applications

Unsteady Heat Transfer Problems Related to a High-Power Laser Flow Loop T88-066
Substrate Effects on Two-Dimensional Laser Beam Backscattering T88-038
Experimental Measurement of Solutal Layers in Unidirectional Solidification T88-037
Two-Wavelength Holographic Measurement of Temperature and Concentration During Alloy Solidification T88-036
Radial Scattering of a Laser Beam in Anisotropic Scattering Media T88-021

Numerical Analysis

Study of Heat Transfer from a Finned Rotating Cylinder T88-044
Analysis of Two-Dimensional Steady-State Heat Transfer in a Rectangular Region T88-039
Computational Aspects of Heat Transfer in Structures via Transfinite-Element Formulation T88-035
Numerical Analysis of Laminar Flow in a Double-Walled Annular Heat Pipe T88-030

Research Facilities and Instrumentation

Surface Effects of Satellite Material Outgassing Products T88-060

Space Processing

Experimental Measurement of Solutal Layers in Unidirectional Solidification T88-037
Two-Wavelength Holographic Measurement of Temperature and Concentration During Alloy Solidification T88-036

Launch Vehicle and Missile (LV/M) Technology

Aerodynamic Heating and Ablation

Ablation with a Large Fraction of Solid Removal T88-046

Propulsion

Electric and Advanced Space Propulsion

Experiments on Optical Discharges in Hydrogen T88-058

Solid and Hybrid Rocket Engines

Radiative Heat Feedback in Aluminized Solid Propellant Combustion T88-024

Spacecraft Technology

Entry Vehicle Aerodynamic Heating

Ablation with a Large Fraction of Solid Removal T88-046

Entry Vehicle Aerodynamics

Monte Carlo Simulations in Support of the Shuttle Upper Atmospheric Mass Spectrometer Experiment T88-026

Meteoroid and Radiation Protection

Fluid Loss from a Puncture of a Space Radiator T88-013

Temperature Control

Roll-Out-Fin Expandable Space Radiator Concept T88-016
Condensation Heat Transfer in a Microgravity Environment T88-012

Structural Mechanics and Materials

Materials, Properties of

Normal Spectral Emmittance Data for Thoriated Tungsten, Rhenium Alloys T88-017

Thermophysics and Thermochemistry

Ablation, Pyrolysis, Thermal Decomposition and Degradation (including Refractories)

Ablation with a Large Fraction of Solid Removal T88-046

Experimental Methods of Diagnostics

Unsteady Heat Transfer Coefficient Estimation for Long Duration T88-040
Experimental Measurement of Solutal Layers in Unidirectional Solidification T88-037
Two-Wavelength Holographic Measurement of Temperature and Concentration During Alloy Solidification T88-036
Comparison of Experimental and Computational Values of Flame Radiation T88-025
Radial Scattering of a Laser Beam in Anisotropic Scattering Media T88-021

Heat Conduction

Heat Transfer from a Spherical Particle in a Rarefied Monatomic Gas T88-057
Radiative Exchange Between Gray Fins Using a Coupled Integral Equation Formulation T88-055
Steady Conjugate Heat Transfer in Fully Developed Laminar Pipe Flows T88-051
Correlation of the Gap Conductance Integral for Conforming Rough Surfaces T88-050
Perturbation Analysis of Tapered Fins with Nonlinear Thermal Properties T88-049
Analysis of Two-Dimensional Steady-State Heat Transfer in a Rectangular Region T88-039
Computational Aspects of Heat Transfer in Structures via Transfinite-Element Formulation T88-035
Energy Transfer in an Elliptic Annulus with Uniform Heat Generation T88-034
Constriction Resistance of Circular Contacts on Coated Surfaces: Effect of Boundary Conditions T88-029
Perturbation Solution for Spherical Solidification by Convective Cooling T88-015
Experimental Study of the Transient Heat Transfer Across Periodically Contacting Surfaces T88-005
Hybrid Laplace Transform/Finite-Element Method for Two-Dimensional Transient Heat Conduction T88-004
Simultaneous Conduction and Radiation in a Two-Layer Planar Medium T87-021

Heat Pipes

Liquid Flow Analysis in the Evaporator Grooves of the Cold Plate T88-031
Numerical Analysis of Laminar Flow in a Double-Walled Annular Heat Pipe T88-030
Roll-Out-Fin Expandable Space Radiator Concept T88-016
Transient Response of a Liquid Metal Heat Pipe T88-003

Radiation and Radiative Heat Transfer

Source Expansion Solutions for Radiative Transfer in Slab, Spherical, and Cylindrical Geometries T88-069
Simple Model for Particle Radiative Transfer in Vacuum Particle Plumes T88-068
Radiative View Factors From Spherical Segments to Planar Surfaces T88-065
Radiation Heat-Transfer Model for Fibers Oriented Parallel to Diffuse Boundaries T88-061
Surface Effects of Satellite Material Outgassing Products T88-060
Three-Dimensional Radiative Heat-Transfer Solutions by Discrete-Ordinates Method T88-056
Radiative Exchange Between Gray Fins Using a Coupled Integral Equation Formulation T88-055
Radiation View Factors from a Sphere to Nonintersecting Planar Surfaces T88-053
Evaporation from a Drop Suspended in an Electric Field T88-052
Radiation View Factors from Differential Plane Sources to Disks--A General Formulation T88-047
Substrate Effects on Two-Dimensional Laser Beam Backscattering T88-038
Comparison of Experimental and Computational Values of Flame Radiation T88-025
Radiative Heat Feedback in Aluminized Solid Propellant Combustion T88-024
Radiative Transfer Within a Cylindrical Geometry with Fresnel Reflecting Boundary T88-023
Transient Radiative Cooling of an Absorbing and Scattering Cylinder--A Separable Solution T88-022
Radial Scattering of a Laser Beam in Anisotropic Scattering Media T88-021
Direct Determination of Gray Participating Thermal Radiation Properties of Insulating Materials T88-020
Normal Spectral Emmittance Data for Thoriated Tungsten, Rhenium Alloys T88-017
Radiative Shape Factors Between Differential Ring Elements on Concentric Axisymmetric Bodies T88-014

Spectral Radiative Properties of Fiberglass Insulation T88-011
Radiative Transfer within an Arbitrary Isotropically Scattering Medium Enclosed by Diffuse Surfaces T88-010
Freejet Flows of Gas-Particle Mixtures T88-002
Simultaneous Conduction and Radiation in a Two-Layer Planar Medium T87-021

Radiatively Coupled Flows and Heat Transfer

Simple Model for Particle Radiative Transfer in Vacuum Particle Plumes T88-068
Radiative Heat Feedback in Aluminized Solid Propellant Combustion T88-024
Roll-Out-Fin Expandable Space Radiator Concept T88-016
Analysis of Radiation-Induced Natural Convection in Rectangular Enclosures T87-056

Thermal Control

Natural Convection in an Enclosure Heated from Below with a Conductive Horizontal Partition T88-062
Radiation View Factors from a Sphere to Nonintersecting Planar Surfaces T88-053
Evaporation from a Drop Suspended in an Electric Field T88-052
Liquid Flow Analysis in the Evaporator Grooves of the Cold Plate T88-031
Calorimetric Measurements of Thermal Control Surfaces at Geosynchronous Orbit T88-027
Fluid Loss from a Puncture of a Space Radiator T88-013
Condensation Heat Transfer in a Microgravity Environment T88-012
Relative Contact Pressure: Dependence on Surface Roughness and Vickers Microhardness T88-006
Transient Response of a Liquid Metal Heat Pipe T88-003

Thermal Modeling and Analysis

Simple Model for Particle Radiative Transfer in Vacuum Particle Plumes T88-068
Multiburst Cloud Rise: Theory and Experiment T88-067
Unsteady Heat Transfer Problems Related to a High-Power Laser Flow Loop T88-066
Boundary-Element Method for Three-Dimensional Heat Transfer in Regions with Symmetry T88-063
Three-Dimensional Radiative Heat-Transfer Solutions by Discrete-Ordinates Method T88-056
Radiation View Factors from a Sphere to Nonintersecting Planar Surfaces T88-053
Correlation of the Gap Conductance Integral for Conforming Rough Surfaces T88-050
Perturbation Analysis of Tapered Fins with Nonlinear Thermal Properties T88-049
Transient Laminar-Film Condensation on a Vertical Plate T88-045
Study of Heat Transfer from a Finned Rotating Cylinder T88-044
Thermally Developing Flow in an Annulus with a Boiling Boundary T88-042
Analysis of Turbulent Pipe Flow with a Variable Heat Transfer Coefficient Using Integral Equations T88-041
Computational Aspects of Heat Transfer in Structures via Transfinite-Element Formulation T88-035
Flow in Conjugate Natural Circulation Loops T88-032
Constriction Resistance of Circular Contacts on Coated Surfaces: Effect of Boundary Conditions T88-029
Direct Determination of Gray Participating Thermal Radiation Properties of Insulating Materials T88-020
Condensation Heat Transfer in a Microgravity Environment T88-012
Spectral Radiative Properties of Fiberglass Insulation T88-011
Heat Transfer from Parallel Flow Through Isosceles Triangular and Rectangular Tube Bundles T88-008
Relative Contact Pressure: Dependence on Surface Roughness and Vickers Microhardness T88-006
Melting of a Horizontal Substrate Placed Under a Heavier and Miscible Pool T87-048

Thermal Surface Properties

Correlation of the Gap Conductance Integral for Conforming Rough Surfaces T88-050
Substrate Effects on Two-Dimensional Laser Beam Backscattering T88-038
Constriction Resistance of Circular Contacts on Coated Surfaces: Effect of Boundary Conditions T88-029
Calorimetric Measurements of Thermal Control Surfaces at Geosynchronous Orbit T88-027

Thermochemistry and Chemical Kinetics

Experiments on Optical Discharges in Hydrogen T88-058
Assessment of a Two-Temperature Kinetic Model for Dissociating and Weakly Ionizing Nitrogen T88-001

Thermophysical Properties of Matter

Surface Effects of Satellite Material Outgassing Products T88-060
Direct Determination of Gray Participating Thermal Radiation Properties of Insulating Materials T88-020
Spectral Radiative Properties of Fiberglass Insulation T88-011
Relative Contact Pressure: Dependence on Surface Roughness and Vickers Microhardness T88-006

Author Index

Acharya, S., T88-033
Anderson, C. C., T88-027
Arnas, O. A., T88-034
Babikian, D. S., T88-025
Beale, J., T88-041
Beam, J. E., T88-016
Bert, C. W., T88-039
Bertrand, W. T., T88-060
Bird, G. A., T88-026
Boldrini, J. L., T88-015
Brewster, M. Q., T88-024
Bryson, R. J., T88-060
Burmeister, L. C., T88-054
Chen, A. J., T88-040
Chen, C., T88-004, T88-062
Chen, H., T88-004
Chow, L. C., T88-003, T88-012, T88-013
Chung, B. T. F., T88-008, T88-053
Chung, J. N., T88-052
Cohen, D. L., T88-068
Culham, J. R., T88-028
Cull, R. A., T88-060
Ebadian, M. A., T88-034
Ecker, A., T88-036
Edwards, D. K., T88-025
Eskridge, R. H., T88-058
Faghri, A., T88-030
Falco, P. M., T88-060
Fiveland, W. A., T88-056
France, D. M., T88-042
Frankel, J. I., T88-055
Gerner, F. M., T88-045
Giles, G. E., T88-063
Gray, L. J., T88-063
Gutjahr, M., T88-064
Hadim, A., T88-054
Hagen, K. D., T88-049
Hattar, M. M., T88-027
Hayes, J. R., T88-040
Hitchcock, J. E., T88-046
Ho, C. -H., T87-021
Hodge, J. K., T88-040
Huang, J., T88-023
Hwangbo, H., T88-031
Ishii, R., T88-002
Jacobson, D. L., T88-017
Jang, J., T88-062
Johnson, R. R., T88-005
Jumper, G. Y., Jr., T88-046
Kaul, R., T87-057
Kazmierczak, M., T88-043, T88-059
Kisomi, A., T88-069
Ko, C. L., T88-039
Koppenwallner, G., T88-048
Kuo, J. C., T88-051
Lee, S. C., T88-061
Legge, H., T88-048
Lemczyk, T. F., T88-028
Lin, J., T88-010, T88-023
Lin, T. F., T88-051
Look, D. C., Jr., T88-038
Love, T. J., T88-020
Loyalka, S. K., T88-057
Mahefkey, E. T., T88-003, T88-016
McCay, M. H., T88-037
McCay, T. D., T88-037, T88-058
McEver, W. S., T88-031
Milanez, L. F., T88-015
Modest, M. F., T88-014
Moses, W. M., T88-005
Moss, J. N., T88-026
Muntz, E. P., T88-048
Munukutla, S. S., T88-066
Murthy, J., T88-044
Naraghi, M. H. N., T88-047, T88-065
Negus, K. J., T88-029, T88-050
Nelson, H. F., T88-021, T88-038
Nguyen, H. D., T88-052
Orme, M., T88-048
Orozco, J., T88-064
Ostowari, C., T88-009
Ozisik, M. N., T87-021
Parish, R. C., T88-012
Park, C., T88-001
Parry, D. L., T88-024
Parvani, S., T88-030
Pazooki, N., T88-057
Ponnappan, R., T88-016
Porteiro, J. L. F., T88-009
Poulikakos, D., T88-059, T88-064
Railkar, S. B., T88-035
Ramalingam, M. L., T88-017
Ramos, E., T88-032
Reed, J. G., T88-045
Roux, J. A., T88-011
Sabet, M., T88-053
Saboonchi, A., T88-020
Sadowski, D., T88-043
Salazar, O., T88-032
Satish, B. V., T88-021
Seiber, B. L., T88-060
Sen, M., T88-032
Shaw, H., T88-062
Shin, S. K., T88-042
Siegel, R., T88-022
Song, S., T88-006
Sutton, W. H., T88-020, T88-069
Taghavi, K., T87-048
Tamma, K. K., T88-035
Thompson, J. C., T88-029
Tien, C. L., T88-045
Tilton, D. E., T88-003, T88-013
Umeda, Y., T88-002
Van Zandt, D. H., T88-058
Venkataraman, R., T88-066
Vick, B., T88-041
Viskanta, R., T87-056
Wang, T. P., T88-055
Webb, B. W., T87-056
Wendel, M. W., T88-063
Whitaker, K. W., T88-009
Witte, L. C., T87-057
Wood, B. E., T88-060
Yao, L. S., T88-007
Yeh, H. Y., T88-011
Yeh, L. T., T88-008
Yovanovich, M. M., T88-006, T88-028, T88-029, T88-050
Zimmerman, A. W., T88-067
Zimmerman, E., T88-033

Chronological Index

T87-021 Simultaneous Conduction and Radiation in a Two-Layer Planar Medium. C. -H. Ho and M. N. Ozisik, *North Carolina State University* (1, 2, p. 154) Article
Errata (2, 1, p. 96)

T87-048 Melting of a Horizontal Substrate Placed Under a Heavier and Miscible Pool. K. Taghavi, *University of Kentucky* (1, 4, p. 321) Article
Errata (2, 1, p. 96)

T87-056 Analysis of Radiation-Induced Natural Convection in Rectangular Enclosures. B. W. Webb and R. Viskanta, *Purdue University* (1, 2, p. 146) Article

T87-057 Prediction of Film Boiling Wakes Behind Cylinders in Cross Flow. Rajeev Kaul, *Pipeline Hydraulics Engineering*; and Larry C. Witte, *University of Houston* (2, 2, p. 186) Technical Note

T88-001 Assessment of a Two-Temperature Kinetic Model for Dissociating and Weakly Ionizing Nitrogen. Chul Park, *NASA Ames Research Center* (2, 1, p. 8) Article based on AIAA Paper 86-1347

T88-002 Freejet Flows of Gas-Particle Mixtures. R. Ishii and Y. Umeda, *Kyoto University, Japan* (2, 1, p. 17) Article based on AIAA Paper 86-1317

T88-003 Transient Response of a Liquid Metal Heat Pipe. D. E. Tilton, L. C. Chow and E. T. Mahefkey, *University of Kentucky* (2, 1, p. 25) Article based on AIAA Paper 86-1271

T88-004 Hybrid Laplace Transform/Finite-Element Method for Two-Dimensional Transient Heat Conduction. Han-Taw Chen and Cha'o-Kuang Chen, *National Cheng Kung University, Taiwan, ROC* (2, 1, p. 31) Article

T88-005 Experimental Study of the Transient Heat Transfer Across Periodically Contacting Surfaces. W. M. Moses, *Texas A&M University*; and R. R. Johnson, *North Carolina State University* (2, 1, p. 37) Article based on AIAA Paper 86-1244

T88-006 Relative Contact Pressure: Dependence on Surface Roughness and Vickers Microhardness. S. Song and M. M. Yovanovich, *University of Waterloo, Canada* (2, 1, p. 43) Article

T88-007 Natural Convection Along a Wedge. L. S. Yao, *Arizona State University* (2, 1, p. 48) Article based on AIAA Paper 87-1590

T88-008 Heat Transfer from Parallel Flow Through Isosceles Triangular and Rectangular Tube Bundles. B. T. F. Chung, *University of Akron*; and L. T. Yeh, *Texas Instruments, Inc.* (2, 1, p. 55) Article based on AIAA Paper 87-0079

T88-009 Heat Transfer Behavior with Convex Target Surfaces. K. W. Whitaker, *The BDM Corporation*; C. Ostowari, *Texas A&M University*; and J. L. F. Porteiro, *University of South Florida* (2, 1, p. 63) Article based on AIAA Paper 86-1236

T88-010 Radiative Transfer within an Arbitrary Isotropically Scattering Medium Enclosed by Diffuse Surfaces. Jenn-Der Lin, *National Chiao Tung University, Taiwan, ROC* (2, 1, p. 68) Article based on AIAA Paper 87-0325

T88-011 Spectral Radiative Properties of Fiberglass Insulation. H. Y. Yeh and J. A. Roux, *University of Mississippi* (2, 1, p. 75) Article

T88-012 Condensation Heat Transfer in a Microgravity Environment. L. C. Chow, *University of Kentucky*; and R. C. Parish, *NASA Johnson Space Center* (2, 1, p. 82) Article

T88-013 Fluid Loss from a Puncture of a Space Radiator. D. E. Tilton and L. C. Chow, *University of Kentucky* (2, 1, p. 84) Technical Note

T88-014 Radiative Shape Factors Between Differential Ring Elements on Concentric Axisymmetric Bodies. Michael F. Modest, *Pennsylvania State University* (2, 1, p. 86) Technical Note

T88-015 Perturbation Solution for Spherical Solidification by Convective Cooling. Luiz F. Milanez and José L. Boldrini, *Universidad Estadual de Campinas, Brazil* (2, 1, p. 88) Technical Note based on AIAA Paper 87-1493

T88-016 Roll-Out-Fin Expandable Space Radiator Concept. R. Ponnappan, *Universal Energy Systems, Inc.*; J. E. Beam and E. T. Mahefkey, *Aero Propulsion Laboratory, Wright-Patterson AFB* (2, 1, p. 91) Technical Note based on AIAA Paper 86-1323

T88-017 Normal Spectral Emmittance Data for Thoriated Tungsten, Rhenium Alloys. M. L. Ramalingam, *Universal Energy Systems, Inc.*; and D. L. Jacobson, *Arizona State University* (2, 1, p. 94) Technical Note

T88-020 Direct Determination of Gray Participating Thermal Radiation Properties of Insulating Materials. A. Saboonchi, W. H. Sutton and T. J. Love, *University of Oklahoma* (2, 2, p. 97) Article

T88-021 Radial Scattering of a Laser Beam in Anisotropic Scattering Media. H. F. Nelson and B. V. Satish, *University of Missouri--Rolla* (2, 2, p. 104) Article

T88-022 Transient Radiative Cooling of an Absorbing and Scattering Cylinder--A Separable Solution. Robert Siegel, *NASA Lewis Research Center* (2, 2, p. 110) Article

T88-023 Radiative Transfer Within a Cylindrical Geometry with Fresnel Reflecting Boundary. Jenn-Der Lin and Jen-Min Huang, *National Chiao Tung University, Taiwan, ROC* (2, 2, p. 118) Article based on AIAA Paper 87-0326

T88-024 Radiative Heat Feedback in Aluminized Solid Propellant Combustion. M. Quinn Brewster and David L. Parry, *University of Illinois* (2, 2, p. 123) Article

T88-025 Comparison of Experimental and Computational Values of Flame Radiation. D. S. Babikian and D. K. Edwards, *University of California, Irvine* (2, 2, p. 131) Article based on AIAA Paper 86-1319

T88-026 Monte Carlo Simulations in Support of the Shuttle Upper Atmospheric Mass Spectrometer Experiment. James N. Moss, *NASA Langley Research Center*; and Graeme A. Bird, *University of Sydney, Australia* (2, 2, p. 138) Article based on AIAA Paper 85-0968

T88-027 Calorimetric Measurements of Thermal Control Surfaces at Geosynchronous Orbit. C. C. Anderson and M. M. Hattar, *Aerojet ElectroSystems Company* (2, 2, p. 145) Article

T88-028 Simplified Solutions to Circular Annular Fins with Contact Resistance and End Cooling. M. M. Yovanovich, J. R. Culham and T. F. Lemczyk, *University of Waterloo, Canada* (2, 2, p. 152) Article based on AIAA Paper 86-0149

T88-029 Constriction Resistance of Circular Contacts on Coated Surfaces: Effect of Boundary Conditions. K. J. Negus, M. M. Yovanovich and J. C. Thompson, *University of Waterloo, Canada* (2, 2, p. 158) Article based on AIAA Paper 85-1014

T88-030 Numerical Analysis of Laminar Flow in a Double-Walled Annular Heat Pipe. Amir Faghri and Shahram Parvani, *Wright State University* (2, 2, p. 165) Article

T88-031 Liquid Flow Analysis in the Evaporator Grooves of the Cold Plate. Han Hwangbo and W. S. McEver, *MRJ, Subsidiary of Perkin-Elmer Corporation* (2, 2, p. 172) Article based on AIAA Paper 85-0921

T88-032 Flow in Conjugate Natural Circulation Loops. Octavio Salazar, *Instituto de Investigaciones Eléctricas, Mexico*; Mihir Sen, *University of Notre Dame*; and Eduardo Ramos, *Universidad Nacional Autónoma de México* (2, 2, p. 180) Article

T88-033 Influence of Aperture Location on Free Convection in Partially Divided Enclosures. E. Zimmerman and S. Acharya, *Louisiana State University* (2, 2, p. 184) Technical Note

T88-034 Energy Transfer in an Elliptic Annulus with Uniform Heat Generation. O. A. Arnas, *California State University*; and M. A. Ebadian, *Florida International University* (2, 2, p. 186) Technical Note

T88-035 Computational Aspects of Heat Transfer in Structures via Transfinite-Element Formulation. Kumar K. Tamma and Sudhir B. Railkar, *University of Minnesota* (2, 2, p. 189) Technical Note

T88-036 Two-Wavelength Holographic Measurement of Temperature and Concentration During Alloy Solidification. A. Ecker, *NASA Marshall Space Flight Center* (2, 3, p. 193) Article based on AIAA Paper 87-0579

T88-037 Experimental Measurement of Solutal Layers in Unidirectional Solidification. M. H. McCay and T. D. McCay, *University of Tennessee Space Institute* (2, 3, p. 197) Article based on AIAA Paper 87-1494

T88-038 Substrate Effects on Two-Dimensional Laser Beam Backscattering. H. F. Nelson and D. C. Look Jr., *University of Missouri--Rolla* (2, 3, p. 203) Article based on AIAA Paper 87-1483

T88-039 Analysis of Two-Dimensional Steady-State Heat Transfer in a Rectangular Region. C. L. Ko, *Oakland University*; and C. W. Bert, *University of Oklahoma* (2, 3, p. 209) Article

T88-040 Unsteady Heat Transfer Coefficient Estimation for Long Duration. James K. Hodge, *U.S. Air Force Institute of Technology, Wright-Patterson AFB;* Alice J. Chen, *U.S. Air Force Institute of Technology, Wright-Patterson AFB;* and James R. Hayes, *U.S. Air Force Wright Aeronautical Laboratories, Wright-Patterson AFB* (2, 3, p. 218) Article based on AIAA Paper 86-1240.

T88-041 Analysis of Turbulent Pipe Flow with a Variable Heat Transfer Coefficient Using Integral Equations. Jim Beale and Brian Vick, *Virginia Polytechnic Institute and State University* (2, 3, p. 227) Article

T88-042 Thermally Developing Flow in an Annulus with a Boiling Boundary. S. K. Shin and D. M. France, *University of Illinois at Chicago* (2, 3, p. 235) Article

T88-043 Three-Dimensional Natural Convection Experiments in an Enclosure. D. Sadowski and M. Kazmierczak, *University of Illinois at Chicago* (2, 3, p. 242) Article

T88-044 Study of Heat Transfer from a Finned Rotating Cylinder. Jayathi Murthy, *Arizona State University* (2, 3, p. 250) Article

T88-045 Transient Laminar-Film Condensation on a Vertical Plate. J. G. Reed, F. M. Gerner and C. L. Tien, *University of California, Berkeley* (2, 3, p. 257) Article based on AIAA Paper 87-1534

T88-046 Ablation with a Large Fraction of Solid Removal. George Y. Jumper Jr., *Worcester Polytechnic Institute;* and *James E. Hitchcock, U.S. Air Force Institute of Technology, Wright-Patterson AFB* (2, 3, p. 264) Article based on AIAA Paper 86-1260

T88-047 Radiation View Factors from Differential Plane Sources to Disks--A General Formulation. M. H. N. Naraghi, *Manhattan College* (2, 3, p. 271) Technical Note

T88-048 Cavitation of Liquid Streams in a Vacuum. Melissa Orme and E. P. Muntz, *University of Southern California*; H. Legge and G. Koppenwallner, *DFVLR, Institute for Experimental Fluid Mechanics, FRG* (2, 3, p. 274) Technical Note based on AIAA Paper 86-1325

T88-049 Perturbation Analysis of Tapered Fins with Nonlinear Thermal Properties. Kirk D. Hagen, *UNISYS Corporation* (2, 3, p. 276) Technical Note

T88-050 Correlation of the Gap Conductance Integral for Conforming Rough Surfaces. K. J. Negus and M. M. Yovanovich, *University of Waterloo, Canada* (2, 3, p. 279) Technical Note

T88-051 Steady Conjugate Heat Transfer in Fully Developed Laminar Pipe Flows. J. C. Kuo and T. F. Lin, *National Chiao Tung University, Taiwan, ROC* (2, 3, p. 281) Technical Note

T88-052 Evaporation from a Drop Suspended in an Electric Field. Hoa D. Nguyen and Jacob N. Chung, *Washington State University* (2, 3, p. 283) Technical Note

T88-053 Radiation View Factors from a Sphere to Non-intersecting Planar Surfaces. M. Sabet and B. T. F. Chung, *University of Akron* (2, 3, p. 286) Technical Note

T88-054 Onset of Convection in a Porous Medium with Internal Heat Generation and Downward Flow. Abdelhamid Hadim, *Stevens Institute of Technology*; and Louis C. Burmeister, *University of Kansas* (2, 4, p. 343) Article

T88-055 Radiative Exchange Between Gray Fins Using a Coupled Integral Equation Formulation. J. I. Frankel and T. P. Wang, *Florida Institute of Technology* (2, 4, p. 296) Article

T88-056 Three-Dimensional Radiative Heat-Transfer Solutions by Discrete-Ordinates Method. W. A. Fiveland, *Babcock & Wilcox Company* (2, 4, p. 309) Article

T88-057 Heat Transfer from a Spherical Particle in a Rarefied Monatomic Gas. N. Pazooki and S. K. Loyalka, *University of Missouri-Columbia* (2, 4, p. 324) Article

T88-058 Experiments on Optical Discharges in Hydrogen. T. D. McCay, *University of Tennessee Space Institute*; R. H. Eskridge and D. H. Van Zandt, *NASA Marshall Space Flight Center* (2, 4, p. 317) Article

T88-059 Melting of an Ice Surface in Porous Medium. M. Kazmierczak and D. Poulikakos, *University of Illinois at Chicago* (2, 4, p. 359) Article

T88-060 Surface Effects of Satellite Material Outgassing Products. B. E. Wood, W. T. Bertrand, R. J. Bryson and B. L. Seiber, *Calspan Corporation/AEDC Division*; Patrick M. Falco, *U. S. Air Force Wright Aeronautical Laboratories, Wright-Patterson AFB*; and Ray A. Cull, *U. S. Air Force Wright Aeronautical Laboratoties, Wright-Patterson AFB* (2, 4, p. 289) Article based on AIAA Paper 87-1583

T88-061 Radiation Heat-Transfer Model for Fibers Oriented Parallel to Diffuse Boundaries. S. C. Lee, *The Aerospace Corporation* (2, 4, p. 303) Article based on AIAA Paper 87-1487

T88-062 Natural Convection in an Enclosure Heated from Below with a Conductive Horizontal Partition. Heiu-Jou Shaw, Cha'o-Kuang Chen and Jiin-Yuh Jang, *National Cheng-Kung University, Taiwan, ROC* (2, 4, p. 335) Article

T88-063 Boundary-Element Method for Three-Dimensional Heat Transfer in Regions with Symmetry. G. E. Giles and M. W. Wendel, *Martin Marietta Energy Systems, Inc.*; and L. J. Gray, *Oak Ridge National Laboratory* (2, 4, p. 329) Article based on AIAA Paper 87-1551

T88-064 Flow Film Boiling from a Sphere and a Horizontal Cylinder Embedded in Porous Medium. J. Orozco, D. Poulikakos and M. Gutjahr, *University of Illinois at Chicago* (2, 4, p. 359) Article

T88-065 Radiative View Factors From Spherical Segments to Planar Surfaces. M. H. N. Naraghi, *Manhattan College* (2, 4, p. 373) Technical Note

T88-066 Unsteady Heat Transfer Problems Related to a High-Power Laser Flow Loop. Sastry S. Munukutla, *Tennessee Technological University*; and R. Venkataraman, *Lehigh University* (2, 4, p. 376) Technical Note based on AIAA Paper 85-1603

T88-067 Multiburst Cloud Rise: Theory and Experiment. Alan W. Zimmerman, *TRW Defense Systems Group* (2, 4, p. 367) Technical Note

T88-068 Simple Model for Particle Radiative Transfer in Vacuum Particle Plumes. D. L. Cohen, *Massachusetts Institute of Technology* (2, 4, p. 365) Technical Note

T88-069 Source Expansion Solutions for Radiative Transfer in Slab, Spherical, and Cylindrical Geometries. A. Kisomi and W. H. Sutton, *University of Oklahoma* (2, 4, p. 370) Technical Note based on AIAA Paper 85-0946

U.S. Postal Service

STATEMENT OF OWNERSHIP, MANAGEMENT AND CIRCULATION

Required by 39 U.S.C. 3685)

1A. Title of Publication	1B. PUBLICATION NO.	2. Date of Filing
Journal of Thermophysics and Heat Transfer	0 0 0 7 6 5	9/28/88
3. Frequency of Issue	3A. No. of Issues Published Annually	3B. Annual Subscription Price
Quarterly	4	$18.00

4. Complete Mailing Address of Known Office of Publication (*Street, City, County, State and ZIP+4 Code) (Not printers)*
370 L'Enfant Promenade, S.W.
Washington, D.C. 20024

5. Complete Mailing Address of the Headquarters of General Business Offices of the Publisher *(Not printer)*
same as above

6. Full Names and Complete Mailing Address of Publisher, Editor, and Managing Editor *(This item MUST NOT be blank)*

Publisher *(Name and Complete Mailing Address)*
American Institute of Aeronautics and Astronautics, Inc.
(same address as above)

Editor *(Name and Complete Mailing Address)*
Alfred L. Crosbie
(same address as above)

Managing Editor *(Name and Complete Mailing Address)*
William F. O'Connor
(same address as above)

7. Owner *(If owned by a corporation, its name and address must be stated and also immediately thereunder the names and addresses of stockholders owning or holding 1 percent or more of total amount of stock. If not owned by a corporation, the names and addresses of the individual owners must be given. If owned by a partnership or other unincorporated firm, its name and address, as well as that of each individual must be given. If the publication is published by a nonprofit organization, its name and address must be stated.) (Item must be completed.)*

Full Name	Complete Mailing Address
American Institute of Aeronautics and Astronautics, Inc.	same as above

8. Known Bondholders, Mortgagees, and Other Security Holders Owning or Holding 1 Percent or More of Total Amount of Bonds, Mortgages or Other Securities *(If there are none, so state)*

Full Name	Complete Mailing Address
none	

9. For Completion by Nonprofit Organizations Authorized To Mail at Special Rates *(DMM Section 423.12 only)*
The purpose, function, and nonprofit status of this organization and the exempt status for Federal income tax purposes *(Check one)*

(1) ☒ Has Not Changed During Preceding 12 Months
(2) ☐ Has Changed During Preceding 12 Months *(If changed, publisher must submit explanation of change with this statement.)*

10. Extent and Nature of Circulation *(See instructions on reverse side)*	Average No. Copies Each Issue During Preceding 12 Months	Actual No. Copies of Single Issue Published Nearest to Filing Date
A. Total No. Copies *(Net Press Run)*	1625	1500
B. Paid and/or Requested Circulation 1. Sales through dealers and carriers, street vendors and counter sales	---	---
2. Mail Subscription *(Paid and/or requested)*	1034	1108
C. Total Paid and/or Requested Circulation *(Sum of 10B1 and 10B2)*	1034	1108
D. Free Distribution by Mail, Carrier or Other Means Samples, Complimentary, and Other Free Copies	232	112
E. Total Distribution *(Sum of C and D)*	1266	1220
F. Copies Not Distributed 1. Office use, left over, unaccounted, spoiled after printing	359	280
2. Return from News Agents	---	---
G. TOTAL *(Sum of E, F1 and 2—should equal net press run shown in A)*	1625	1500

11. I certify that the statements made by me above are correct and complete — Signature and Title of Editor, Publisher, Business Manager, or Owner

PS Form 3526, Dec. 1987 *(See instructions on reverse)*